**The Highland Park Plant**

The Ford Motor Company’s construction of the [Highland Park Plant](http://www.nps.gov/history/nr/travel/detroit/d32.htm" \o "Highland Park Plant" \t "_blank) was an investment in [capital](http://www.econedlink.org/lessons/economic-glossary-definition.php?term=Capital" \o "Glossary Term: Capital" \t "pop). At the time it opened in 1910, the four-story factory was the largest building under one roof in the state of Michigan. It was considered the model for factory design. Large, open floors allowed for the efficient arrangement of machinery. To enhance natural lighting and ventilation, there were massive windows. About 75 percent of the wall space was glass, and there were skylights as well.

A complex surrounding the Highland Park Plant included a power plant, machine shop, and foundry. Ford was starting to bring together the various stages in the manufacture of automobiles , a strategy called vertical integration. By the 1920s, Ford had purchased a rubber plantation in Brazil , coal mines in Kentucky , acres of timberland and iron-ore mines in Michigan and Minnesota , a fleet of ships, and a railroad. These efforts to vertically integrate helped Ford make sure his company would have raw materials and parts when they were needed, guaranteeing a continuously operating assembly line. These efforts also enabled the company to profit from more of the processes involved in producing the automobile.

Single-purpose machines and tools were created for the different steps in the manufacturing process. New power technologies such as electricity were used to run machines more efficiently than humans could run them. Electrical lighting was a key factor in making it possible to operate the factory by day and night , in three shifts.

 To facilitate the moving assembly line, an “endless chain-driven” conveyor was built to move each chassis from one workstation to another. Work slides, rollways, trolleys, elevators and other devices were also created to move cars and parts to workers so that workers could repeat their assigned tasks without having to move their feet.

Henry Ford also invested in [human capital](http://www.econedlink.org/lessons/economic-glossary-definition.php?term=Human%20Capital" \o "Glossary Term: Human Capital" \t "pop) that is, he invested in people—to improve productivity. He realized that good health, education, and training all contributed to a worker's productivity. Thousands of immigrants from dozens of countries worked side by side at Highland Park . Many did not read, write, or speak English.

It is almost essential that a workman have a knowledge of English, from a safety standpoint as well as to thoroughly understand the requirements of his work.  
*Ford Factory Facts, Ford Motor Company, 1915*

The Ford Motor Company established a [school](http://www.autolife.umd.umich.edu/Labor/L_Overview/FordEnglishSchool.htm" \o "school" \t "_blank) where workers were taught English so they could be safe and more productive on the job. A plant hospital provided health care.

What was the impact of all these changes? Production doubled in each of the first three years the Highland Park Plant operated—from 19,000 cars in 1910, to 34,500 in 1911, to a staggering 78,440 in 1912.

 With a new factory, new machines and new ways of organizing production, everything should have been great--but it wasn't. Spending hours and hours doing the same task over and over was unpleasant for workers. In addition, the work was dangerous. Morale was often low. Workers couldn't be counted on to show up on a regular basis. Many just quit and looked for jobs elsewhere.

Given these problems, it was difficult to keep the line running smoothly. Making matters worse, new workers required a costly break-in period that reduced productivity. Ford found himself spending $100 to train each new worker, but many of these men only stayed a month or two before quitting.

**The $5-a-day Workday**

After the success of the moving assembly line, Henry Ford had another transformative idea: in January 1914, he startled the world by announcing that Ford Motor Company would pay $5 a day to its workers. The pay increase would also be accompanied by a shorter workday (from nine to eight hours). While this rate didn't automatically apply to every worker, it more than doubled the average autoworker's wage.

While Henry's primary objective was to reduce worker attrition—labor turnover from monotonous assembly line work was high—newspapers from all over the world reported the story as an extraordinary gesture of goodwill.

After Ford’s announcement, thousands of prospective workers showed up at the Ford Motor Company employment office. People surged toward Detroit from the American South and the nations of Europe. As expected, employee turnover diminished. And, by creating an eight-hour day, Ford could run three shifts instead of two, increasing productivity.

Henry Ford had reasoned that since it was now possible to build inexpensive cars in volume, more of them could be sold if employees could afford to buy them. The $5 day helped better the lot of all American workers and contributed to the emergence of the American middle class. In the process, Henry Ford had changed manufacturing forever.

Ford's $5 day sent shockwaves through the auto industry. Many businesspeople , including stockholders in the Ford Motor Company , regarded the pay increase as crazy. Many thought the company would soon go out of business. But Ford believed that retaining more skilled, satisfied employees would increase productivity and lower production costs. He was right! Turnover and absenteeism disappeared almost overnight. In addition, Ford greatly increased the size of his plants by adding new and additional equipment to further raise the productivity of his workforce.

* In 1914, 13,000 workers at Ford made 260,720 cars. By comparison, in the rest of the industry, it took 66,350 workers to make 286,770 cars.
* Between 1914 and 1916, the company's profits doubled—from $30 million to $60 million.

Ford was producing cars at a record-breaking rate. In the early days of Model T production, completing one vehicle required 12 hours. By 1914, vehicles rolled out of the Highland Park Plant at the rate of one every 93 minutes. In 1920, Ford turned out one car every minute, and one out of every two automobiles in the world was a Model T. At one point, the pace picked up to one Ford being manufactured every 24 seconds!